Claims

1. Method for allocating radio communication resources in a
   cellular radio communication system comprising a plurality
   of user stations (MS1, MS2, A, B, C, D, E, F, G, H, I) and
   network units (BS1, BS2, NET),
   with a frequency band (B) divided up into a plurality of
   sub-carriers (CAR) being used in the radio communication
   system for communication purposes,
   in which case, in a number of radio cells (Z1, Z2) of one
   or more network units (BS1, BS2, NET)
   - the frequency band (B) is divided up into a number of
     sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) each
     comprising one or more sub-carriers (CAR),
   - user stations (A, B, C, D, E, F, G, H, I) are divided
     into a
     number of groups (G1, G2, G3), and
   - each group (G1, G2, G3) is allocated a sub-band (SUB1,
     SUB2, SUB3, SUB4, SUB5, SUB6) for communication,
   c h a r a c t e r i z e d i n t h a t
   the number of the sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5,
   SUB6) differs from one another for at least two radio cells
   (Z1, Z2).

2. Method in accordance with claim 1,
   c h a r a c t e r i z e d i n t h a t
   in each radio cell (Z1, Z2) of the at least two radio cells
   (Z1, Z2) the number of sub-bands (SUB1, SUB2, SUB3, SUB4,
   SUB5, SUB6) of the network unit or network units (BS1, BS2,
   NET) is determined depending on the transmission conditions
   in the relevant radio cell (Z1, Z2).

3. Method in accordance with claim 2,
   c h a r a c t e r i z e d i n t h a t

the transmission conditions involved are transmission
capacities of the sub-carriers (CAR) in the relevant radio
cell (Z1, Z2).

4. Method in accordance with Claim 2 or 3,
   characterized in that
   the transmission conditions of at least one user station
   (MS1, MS2, A, B, C, D, E, F, G, H, I) and/or a network unit
   (BS1, BS2) are determined by measurement of signal-to-noise
   ratios.

5. Method in accordance with one of the Claims 1 to 4,
   characterized in that
   in each radio cell (Z1, Z2) of the at least two radio cells
   (Z1, Z2) the number of sub-bands (SUB1, SUB2, SUB3, SUB4,
   SUB5, SUB6) of the network unit or network units (BS1, BS2,
   NET) is determined taking into consideration the data
   transmission made possible by the subsequent division of
   the frequency band (B) into sub-bands (SUB1, SUB2, SUB3,
   SUB4, SUB5, SUB6) and division of user stations (A, B, C,
   D, E, F, G, H, I) into groups (G1, G2, G3) and allocation
   of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups
   (G1, G2, G3).

6. Method in accordance with one of the claims 1 to 5,
   characterized in that
   in at least one radio cell (Z1, Z2) the division into sub-
   bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) and groups (G1,
   G2, G3) and the allocation of sub-bands (SUB1, SUB2, SUB3,
   SUB4, SUB5, SUB6) to groups (G1, G2, G3) is undertaken
   using a procedure in which, to increase the transmission
   capacity in the relevant radio cell (Z1, Z2) starting from
   the transmission capacity of a first constellation of sub-
   band division, group division and allocation of sub-bands

(SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups (G1, G2, G3) the transmission capacity of a modified constellation of sub-band division, group division and allocation of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups (G1, G2, G3) is calculated.

7. Method in accordance with claim 6,
   c h a r a c t e r i z e d   i n   t h a t
   the modified constellation is formed from the first constellation by swapping at least one user station (A, B, C, D, E, F, G, H, I) of a group (G1, G2, G3) with a user station (A, B, C, D, E,. F, G, H, I) of another group (G1, G2, G3) while the division of sub-bands and allocation of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups (G1, G2, G3) remains the same and/or by swapping at least one sub-carrier (CAR) of a sub-band (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) with a sub-carrier (CAR) of another sub-band (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) while the division into groups and the allocation of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups (G1, G2, G3) remains the same.

8. Method in accordance with claims 6 or 7,
   c h a r a c t e r i z e d   i n   t h a t
   in each radio cell (Z1, Z2) of the at least two radio cells (Z1, Z2), the number of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) of the network unit or network units (BS1, BS2, NET) is determined so that, with the method for increasing the transmission capacity, a predetermined increase in the transmission capacity in the relevant radio cell (Z1, Z2) and/or a predetermined transmission capacity in the relevant radio cell (Z1, Z2) can be achieved.

9. Method in accordance with one of the claims 1 to 8,

characterized in that

after the allocation of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups (G1, G2, G3) for communication of user stations (MS1, MS2, A, B, C, D, E, F, G, H, I) data is spread using codes on some or all sub-carriers (CAR) of the respective sub-band allocated (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6).

10. Method in accordance with one of the claims 1 to 9,
    characterized in that
    signals which were transmitted after the allocation of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to groups (G1, G2, G3) for the communication of user stations (MS1, MS2, A, B, C, D, E, F, G, H, I) of a group (G1, G2, G3) on at least partly the same sub-carriers (CAR), can be distinguished from each other by their spatial propagation.

11. Network unit (BS1), especially for executing a method in accordance with one of the claims 1 to 10, for a radio cell (Z1) of a cellular radio communication system comprising a plurality of user stations (MS1, MS2, A, B, C, D, E, F, G, H, I),
    with a frequency band (B) divided up into a plurality of sub-carriers (CAR) being used in the radio communication system for communication, with
    • Means (M1) for defining a number of sub-bands (SUB1, SUB2, SUB3) depending on transmission conditions in the radio cell (Z1),
    • Means (M2) for dividing up the frequency band (B) into the number sub-bands (SUB1, SUB2, SUB3) each comprising one or more sub-carrier (CAR),
    • Means (M3) for dividing up user stations (A, B, C, D, E, F, G, H, I) into a number of groups (G1, G2, G3), and
    • Means (M4) for allocating the sub-bands (SUB1, SUB2,

SUB3) to a group (G1, G2, G3) for communication in each case.

12. Computer program product for a network unit (BS1, BS2, NET) for a radio cell (Z1, Z2) of a cellular radio communication system comprising a plurality of user stations (MS1, MS2, A, B, C, D, E, F, G, H, I), with a frequency band (B), divided up into a plurality of sub-carriers (CAR), being used in the radio communication system for communication,

- to determine a number of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) depending on transmission conditions in the radio cell (Z1, Z2),

- to divide up the frequency band (B) into the number of sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) comprising one or more sub-carriers (CAR) in each case,

- to divide up user stations (A, B, C, D, E, F, G, H, I) into a number of groups (G1, G2, G3), and

- to allocate the sub-bands (SUB1, SUB2, SUB3, SUB4, SUB5, SUB6) to a group (G1, G2, G3) for communication in each case.